

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) In a network of stations connected to a shared channel, each station having a transmitter and a receiver, a method of operating the station comprising:
transmitting data across a plurality of different connections between any of a plurality of transmitters and any of a plurality of receivers;
using a plurality of carriers to transmit data between a transmitter and a receiver;
adapting connections between particular pairs of transmitter and receiver to establish a data rate for each carrier of the channel based on characteristics of each carrier of the channel for the connection between a particular pair of transmitter and receiver, wherein the data rate established for at least some carriers for at least one pair differs from the data rate established for the same carriers for at least one other pair ~~some other carriers~~.

2. (Original) The method of claim 1, wherein adapting comprises:
receiving a channel estimation request in a frame from the transmitter over the channel;
determining from the frame the characteristics of the channel for the connection and generating channel information from the determined channel characteristics; and
returning, in a channel estimation response to the transmitter, the channel information so that the channel information can be used by the transmitter in transmissions to the receiver for the connection.

3. (Previously Presented) The method of claim 1 comprising:
sending a channel estimation request to the receiver to obtain channel information for improving delivery of subsequent communications with the receiver; and

receiving the channel information in a channel estimation response from the receiver.

4. (Original) The method of claim 1, wherein the connection is an existing connection and wherein adapting is repeated after a predetermined timeout.

5. (Original) The method of claim 1, wherein adapting occurs during a frame transmission recovery.

6. (Original) The method of claim 1, wherein the connection is an existing connection and adapting is repeated in response to an indication from the receiver.

7. (Original) The method of claim 6, wherein the indication is interpreted by the transmitter as a recommendation to perform adapting due to a change in number of bit errors occurring in transmissions from the transmitter to the receiver as detected by the receiver.

8. (Original) The method of claim 1, wherein the data rate is a maximum data rate.

9. (Currently Amended) A method of operating a network comprising:
transmitting data across a plurality of different connections between any of a plurality of transmitters and any of a plurality of receivers;

using a plurality of carriers to transmit data between a transmitter and a receiver, wherein the manner in which the carriers are used to transmit data may vary for different pairs of transmitter and receiver;

adapting the manner in which carriers are used ~~connections~~ between particular pairs of transmitter and receiver connected to a channel based on characteristics of the channel ~~so that the connections are adapted for transmissions over the channel for such connection~~, wherein the manner in which at least some carriers are used ~~adaptation~~ is different for at least some pairs

~~connections~~ from the manner in which the same carriers are used ~~adaptation~~ for at least some other pairs ~~connections~~.

10. (Currently Amended) In a network of stations, a method of operating a station comprises:

transmitting data across a plurality of different connections between any of a plurality of transmitters and any of a plurality of receivers;

using a plurality of carriers to transmit data between a transmitter and a receiver;

maintaining, for a connection over a channel between a transmitter in the station and a receiver in another station, a channel map provided by the receiver based on characteristics of the channel for the connection and having an associated channel map index;

having the transmitter use the channel map to encode and modulate frame data in a frame for transmission over the channel to the receiver, wherein the channel map provides for the encoding and modulating for at least some carriers for at least one pair to be different from that used for the same carriers for at least one other pair ~~some other carriers~~; and

having the transmitter send the associated channel map index in the frame to identify to the receiver the channel map used by the transmitter.

11. (Original) The method of claim 10, wherein the frame includes a frame control field that is observable by substantially all of the stations in the network and the frame control field includes the associated channel map index.

12. (Original) The method of claim 10, wherein the channel map index can be the same as that used by another receiver.

13. (Original) The method of claim 10, wherein the channel is a power line.

14. (Original) The method of claim 10, wherein using comprises modulating the frame onto OFDM symbols.

15. (Currently Amended) A computer program residing on a computer-readable medium for operating a station in a network of stations, the computer program comprising instructions for:

transmitting data across a plurality of different connections between any of a plurality of transmitters and any of a plurality of receivers;

using a plurality of carriers to transmit data between a transmitter and a receiver;

adapting connections between particular pairs of transmitter and receiver to establish a data rate for each carrier of the channel based on characteristics of each carrier of the channel for the connection between a particular pair of transmitter and receiver, wherein the data rate established for at least some carriers for one pair differs from the data rate established for the same carriers for at least one other pair ~~some other carriers~~.

16. (Canceled).

17. (Currently Amended) The method of claim 1, ~~wherein~~ wherein adapting comprises:
having a receiver determine from a received frame the characteristics of the channel for the connection and generating channel information from the determined channel characteristics;
and

providing the determined channel information to another station for use by that station in transmissions to the receiver for the connection.

18. (Currently Amended) The method of claim 9, ~~wherein~~ wherein adapting comprises:
having a receiver determine from a received frame the characteristics of the channel for the connection and generating channel information from the determined channel characteristics;
and

providing the determined channel information to another station for use by that station in choosing the manner in which carriers are used in transmissions to the receiver for the connection.

19. (Currently Amended) The method of claim 10, ~~wherein~~ wherein adapting comprises:
having a receiver determine from a received frame the characteristics of the channel for the connection and generating channel information from the determined channel characteristics;
and

providing the determined channel information to another station for use by that station in transmissions to the receiver for the connection.

20. (Previously Presented) The method of claim 9 wherein the adapting is performed on a carrier by carrier basis so that the adaptation is different for at least some carriers from the adaptation for at least some other carriers.